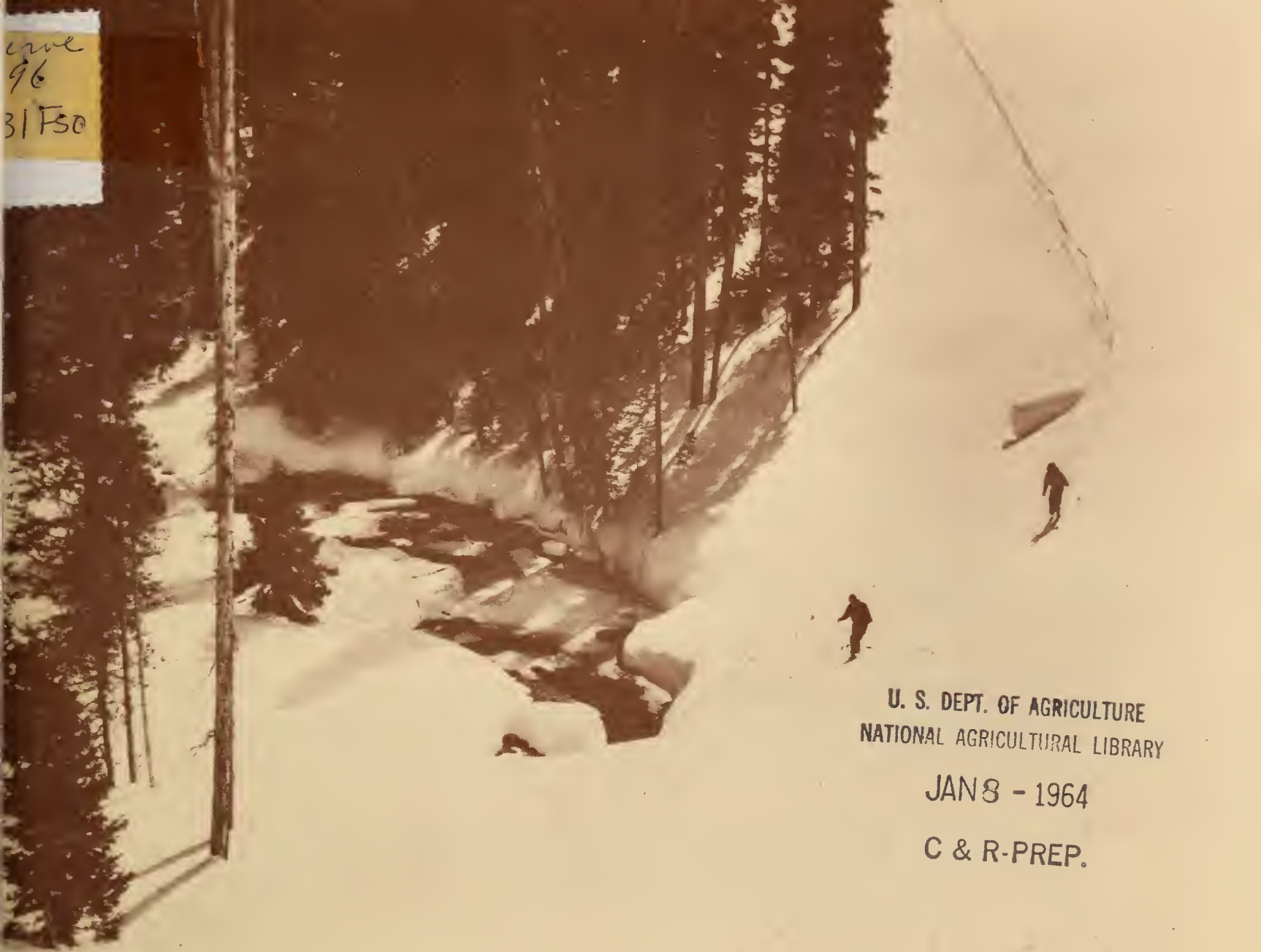


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JAN 8 - 1964

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WATER SUPPLY SUMMARY AND OUTLOOK for OREGON

UNITED STATES DEPARTMENT of AGRICULTURE...SOIL CONSERVATION SERVICE
and
OREGON STATE UNIVERSITY
and
STATE ENGINEER of OREGON

Data included in this report were obtained by the agencies named above
in cooperation with other Federal, State and private organizations.

AS OF
OCT. 1, 1963

UNITED STATES DEPARTMENT OF AGRICULTURE - SOIL CONSERVATION SERVICE

To Recipients of Water Supply Outlook Reports:

The climate of the cultivated and populated areas of the West is characterized by relatively dry summer months. Such precipitation as occurs falls mostly in the winter and early spring months when it is of little immediate benefit to growing crops. Most of this precipitation falls as mountain snow which stays on the ground for months, melting later to sustain streamflow during the period of greatest demand during late spring and summer. Thus, nature provides in mountain snow an imposing water storage facility.

The amount of water stored in mountain snow varies from place to place as well as from year to year and accordingly, so does the runoff of the streams. The best seasonal management of variable western water supplies results from advance estimates of the streamflow.

A snow survey consists of a series of about ten samples taken with specially designed snow sampling equipment along a permanently marked line, up to 1000 feet in length, called a snow course. The use of snow sampling equipment provides snow depth and water equivalent values for each sampling point. The average of these values is reported as the snow survey measurement for a snow course.

Snow surveys are made monthly or semi-monthly beginning in January or February and continue through the snow season until April, May or June. Currently more than 1400 western snow courses are measured each year. These measurements furnish the key data for water supply forecasts.

Streamflow forecasts are obtained by a comparison of total or maximum snow accumulation, as measured by snow water equivalent, to the subsequent spring and summer or snowmelt season runoff over a period of years. The snow water equivalent measured in selected snow courses provides most of the index to the streamflow forecast for the following season. More accurate forecasts are usually obtained when other factors such as soil moisture, base flow and spring precipitation are considered and included in the forecast procedure. Early season forecasts assume average climatic conditions through the snowmelt season.

Listed below are the Federal-State-Private Cooperative Snow Survey and Water Supply Forecast reports available for the West which contain detailed information on snow survey measurements, streamflow forecasts, reservoir storage, soil moisture and other guide data to water management and conservation decisions. Soil Conservation Service Reports may be secured from Water Supply Forecasting Unit, Soil Conservation Service, P.O. Box 4170, Portland 8, Oregon.

PUBLISHED BY SOIL CONSERVATION SERVICE

<u>REPORTS</u>	<u>ISSUED</u>	<u>LOCATION</u>	<u>COOPERATING WITH</u>
RIVER BASINS			
WESTERN UNITED STATES	MONTHLY (FEB.-MAY)	PORTLAND, OREGON	ALL COOPERATORS
STATES			
ALASKA	MONTHLY (MAR.-MAY)	PALMER, ALASKA	ALASKA S.C.D.
ARIZONA	SEMI-MONTHLY (JAN.15 - APR.1)	PHOENIX, ARIZONA	SALT R. VALLEY WATER USERS ASSOC. ARIZ. AGR. EXP. STATION
COLORADO AND NEW MEXICO	MONTHLY (FEB.-MAY)	FORT COLLINS, COLORADO	COLO. STATE UNIVERSITY COLO. STATE ENGINEER N. MEX. STATE ENGINEER
IDAHO	MONTHLY (JAN.-JUNE)	BOISE, IDAHO	IDAHO STATE RECLAMATION ENGINEER
MONTANA	MONTHLY (JAN.-JUNE)	BOZEMAN, MONTANA	MONT. AGR. EXP. STATION
NEVADA	MONTHLY (JAN.-MAY)	RENO, NEVADA	NEVADA DEPT. OF CONSERVATION AND NATURAL RESOURCES - DIVISION OF WATER RESOURCES
OREGON	MONTHLY (JAN.-JUNE)	PORTLAND, OREGON	OREG. STATE UNIVERSITY OREGON STATE ENGINEER
UTAH	MONTHLY (JAN.-JUNE)	SALT LAKE CITY, UTAH	UTAH STATE ENGINEER
WASHINGTON	MONTHLY (FEB.-JUNE)	SPOKANE, WASHINGTON	WN. STATE DEPT. OF CONSERVATION
WYOMING	MONTHLY (FEB.-JUNE)	CASPER, WYOMING	WYOMING STATE ENGINEER

PUBLISHED BY OTHER AGENCIES

<u>REPORTS</u>	<u>ISSUED</u>	<u>AGENCY</u>
BRITISH COLUMBIA	MONTHLY (FEB.-JUNE)	WATER RIGHTS BR., DEPT. OF LANDS, FORESTS AND NATURAL RESOURCES, PARLIAMENT BLDG., VICTORIA, B.C., CANADA
CALIFORNIA	MONTHLY (FEB.-MAY)	CALIF. DEPT. OF WATER RESOURCES, P.O. BOX 388, SACRAMENTO, CALIF.

WATER SUPPLY SUMMARY AND OUTLOOK for OREGON

ISSUED

OCTOBER 8, 1963

Report prepared by

W. T. FROST, Snow Survey Supervisor

and

BOB L. WHALEY, Assistant Snow Survey Supervisor

SOIL CONSERVATION SERVICE
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STATE OF OREGON

WATER SUPPLY SUMMARY and OUTLOOK for OREGON

October 1, 1963

Oregon's water users are winding up a near average irrigation season in spite of the remarkably mild winter which foreboded gloomy water conditions as late as March 29th. "And then the rains came!" Rainfall was considerably above normal for many of the remaining summer months.

These rains fell on already "primed" soils, resulting in much better streamflow than earlier forecasts indicated, and near average water supplies were experienced over most of the state. One exception to this was on the Umatilla where water allotments were cut in half near the season's end to stretch them out and make them last.

Total water in twenty-four of Oregon's major reservoirs averages about 1/3 better than last year's carry-over on October 1st and is only 10 percent below the 1943-57 average.

Watershed soil moisture is slightly better than average and, with normal fall rains, should favor runoff from spring snowmelt.

An average winter snow accumulation should result in a good water supply for next season in most areas of the state which have adequate reservoir facilities.

Details of the water supply picture for various Oregon regions are as follows:

Owyhee-Malheur Watersheds

Irrigation water supplies in Malheur County were about average for the 1963 season after receiving an exceptionally big boost from late spring rains.

Water users of the Owyhee Project received the normal allotment and will have about 230,000 acre feet of carry-over in the reservoir for next season.

Warm Springs and Vale Oregon Irrigation Districts were able to deliver the average allotment of 3.15 acre feet per acre and sustain a total carry-over in all three reservoirs of about 54,000 acre feet. This is a good start towards next year's water supply, if average fall rains prime the soil before winter snows begin to accumulate.

Jordan Valley Irrigation District had a satisfactory season and will possibly have some carry-over in Antelope Reservoir.

Burnt-Powder-Pine-Grande Ronde Watersheds

Irrigators of Baker, Union, and Wallowa Counties received much more streamflow than was expected at the beginning of the irrigation season and, as a result, had about average water supplies in 1963.

Unity reservoir received almost as much inflow during the April-September period in 1963 as in 1962, and ended the season with 2,100 acre feet for carry-over storage to start the 1964 season.

Users of Wallowa Lake water had a good season and managed to carry over about twice as much water as in the last two years.

Umatilla-Walla Walla-Rock-Lower John Day Watersheds

The 1963 irrigation season in Umatilla, Morrow, and Gilliam Counties was better than expected.

Irrigators served by reservoir stored water were able to "stretch" their supply at the end of the season and have a reasonably good year. Streamflow fell off rapidly in this area, and some irrigators dependent on natural flow water supplies were short of water late in the season, as predicted last spring.

The South Fork Walla Walla flowed only slightly less than last year and very close to the forecast at the beginning of the irrigation season.

Upper John Day Watersheds

Irrigators in Grant and Wheeler Counties had a very satisfactory season and much better than expected early last spring. Good late spring rainfall held streamflow up much later than expected and provided a good water supply on most tributaries of the John Day River.

Watersheds have better than average soil moisture and should favor runoff with average amounts of winter precipitation.

Upper Deschutes and Crooked Watersheds

1963 irrigation water supplies in Crook, Jefferson, and Deschutes Counties were adequate for most lands. Streamflow held up much better than expected, saving much needed reservoir water for later use.

Ochoco and Prineville Reservoirs have good carry-over supplies although slightly less than last year at this time.

Flow of the Deschutes at Moody has been 88 percent of average for the April-September period. Crescent Lake has slightly less carry-over than last year but

is still about average. Crane Prairie and Wickiup are a little below average (1943-57) but contain more than last year at this time.

Next year's water supplies are greatly dependent on good fall precipitation and winter snow accumulation.

Hood-Mile Creeks-Lower Deschutes Watersheds

1963 water supplies in Hood River and Wasco Counties were below average as expected before the season began. Although summer flow of the Hood River near Hood River was only about half of the 1943-57 average, reports indicate irrigated crops are satisfactory.

Adequate water for the 1964 season will depend largely on good fall precipitation and winter snow accumulation.

Willamette Watersheds

1963 water supplies were about average for water users in the Willamette Valley. Streamflow, bolstered by late spring rains, produced much more water than was expected.

Rogue-Umpqua Watersheds

Irrigators in the Rogue-Umpqua area had a good irrigation season. Streamflow was considerably better than expected and reservoir carry-over is very good.

Good fall rains and an average winter snowpack should give water users in this area a good water supply for the 1964 season.

Klamath Watershed

1963 water supplies in Klamath Basin were near average and much better than expected before the season began. Unusually heavy late spring rains falling on already wet watershed soils produced much better runoff than expected. Reservoir carry-over of water is much better than last year at this time.

Watershed soils are wetter than last year and with average fall rains and winter snow accumulation, should produce good streamflow for the 1964 season.

Lake County Watersheds

Lake County farming was hindered by heavy spring rains which, however, filled reservoirs and sustained streamflow much longer than expected.

Drews Reservoir contains 36,200 acre feet. This is more carry-over than any year since 1958, and Cottonwood, which is usually dry on October 1, contains an estimated 2,500 acre feet.

Watershed soils are wetter than usual and should favor runoff after normal fall rains. Lakeview County irrigators should have a good season next year with average snow accumulation this winter.

Harney County Watersheds

1963 was a good season for most irrigators in Harney County. Heavy late spring rains eliminated the need for much early water while at the same time producing much better runoff than was expected. More land received water than in any season since 1958.

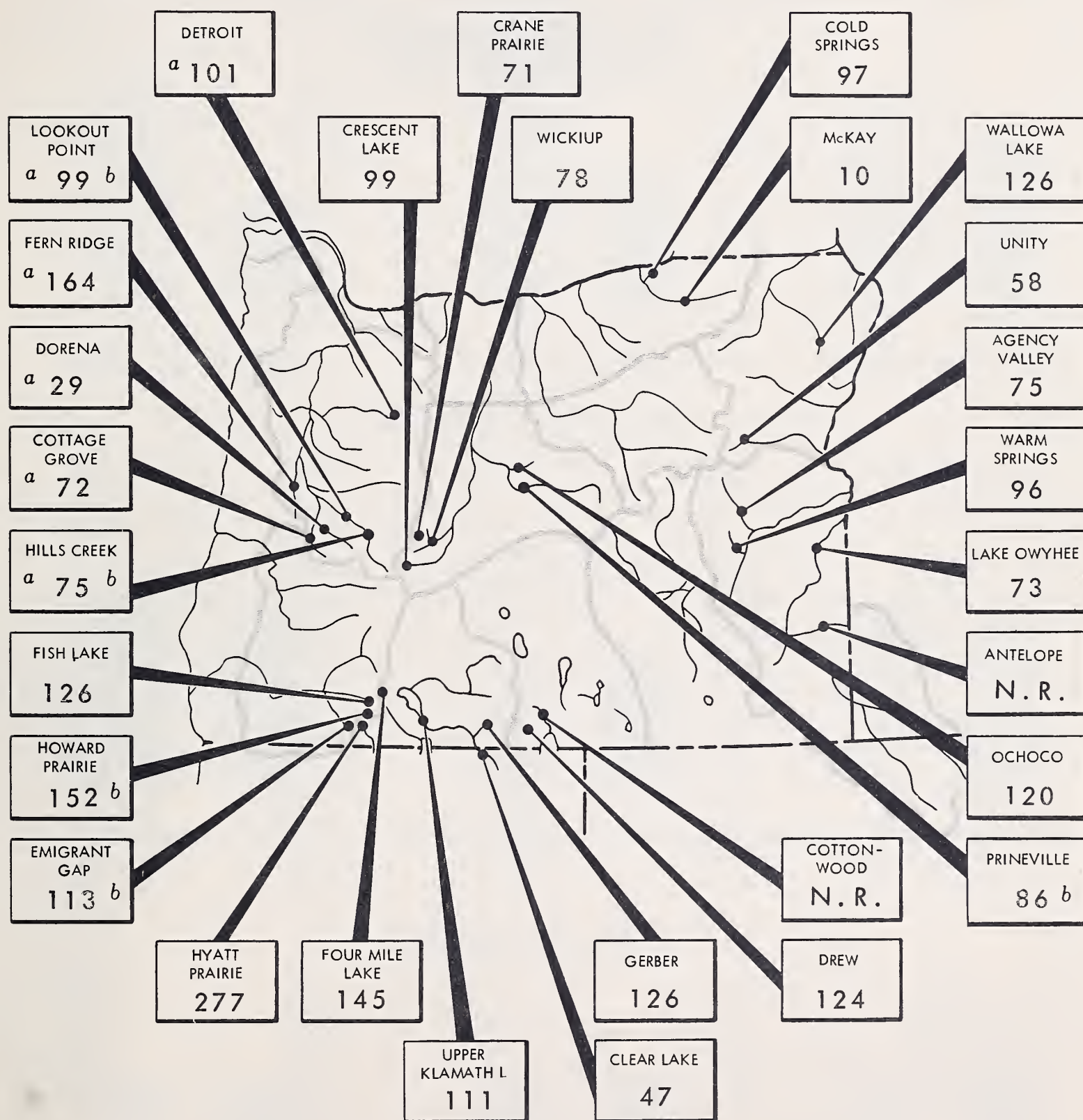
Watershed soils are wetter than last year, in most cases, and should favor spring runoff with a normal amount of fall rains to finish priming the soil.

Preliminary streamflow data furnished by U. S. Geological Survey, U. S. Bureau of Reclamation, and Pacific Power and Light Company.

Preliminary precipitation data furnished by U. S. Weather Bureau.

STORAGE STATUS of OREGON RESERVOIRS as percent of 1943-57, 15 year average

October 1, 1963



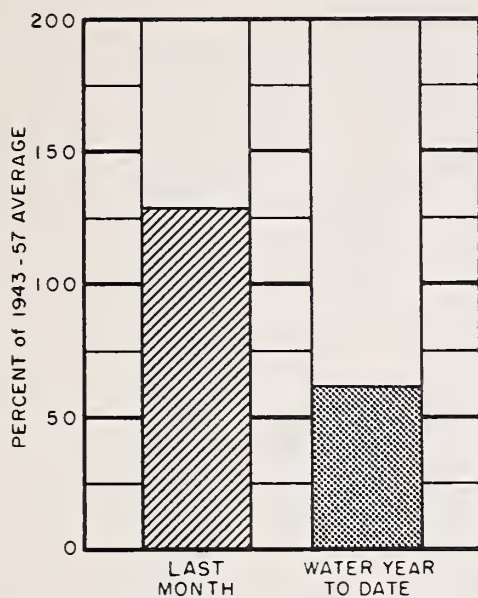
(a) Multiple purpose reservoir - space reserved primarily for flood runoff.
 (b) Short record - compared with last year on this date.
 N.R. - No report.

STATUS OF RESERVOIR STORAGE, OCTOBER 1, 1963

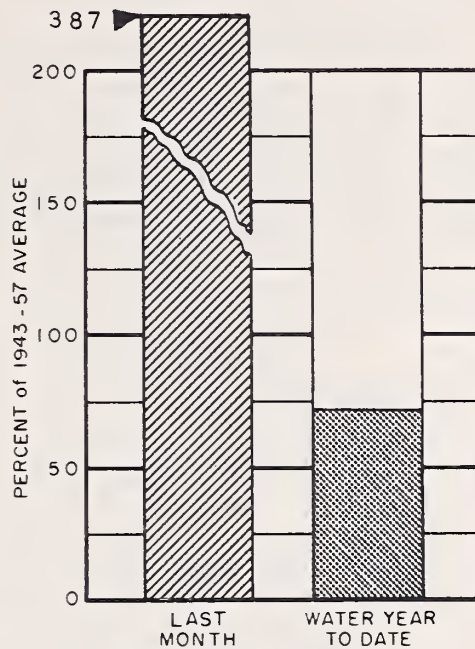
RESERVOIR	USABLE	THOUSANDS ACRE FEET IN STORAGE ABOUT OCT. 1		
	CAPACITY (Thous. A.F.)	1963	1962	15 year average 1943-57
<u>UPPER COLUMBIA DRAINAGE</u>				
<u>LOWER SNAKE IN OREGON</u>				
Antelope	55.0	- -	2.6	- -
Owyhee	715.0	241.6	173.9	331.8
Agency Valley	60.0	11.4	1.5	15.2
Bully Creek	31.0	4.4	- -	- -
Warmsprings	191.0	41.4	0.4	43.2
Unity	25.2	2.1	1.0	3.6
Wallowa Lake	37.5	17.4	8.3	13.8
<u>LOWER COLUMBIA DRAINAGE</u>				
Cold Springs	50.0	3.5	3.8	3.6
McKay	73.8	1.3	0.1	13.5
Ochoco	47.5	20.1	22.8	16.7
Prineville	153.0	101.5	118.4	- -
Crane Prairie	55.3	23.8	22.7	33.6
Crescent Lake	117.2	36.7	49.9	36.9
Wickiup	182.0	28.4	10.6	36.2
Cottage Grove	30.0	7.6	8.9	10.5
Detroit	299.9	197.9	188.8	195.0
Dorena	70.5	5.4	0.0	18.4
Fern Ridge	94.2	76.2	79.2	46.4
Hills Creek	249.0	140.6	187.1	- -
Lookout Point	337.2	228.5	230.1	- -
Timothy Lake	61.6	61.2	61.4	- -
<u>WEST COAST DRAINAGE</u>				
Fourmile Lake	16.1	9.6	4.2	6.6
Fish Lake	7.8	2.4	2.2	1.9
Howard Prairie	60.0	49.3	32.5	- -
Hyatt Prairie	16.1	10.8	9.0	3.9
Emigrant Gap	39.0	15.8	14.0	0.2
Upper Klamath	584.0	306.3	255.4	275.1
Gerber	94.0	36.4	3.2	29.0
Clear Lake	440.2	91.8	48.7	195.1
Cottonwood	8.7	2.5 ^e	0.0	0.0
Drew	63.0	36.2	5.0	29.1

CURRENT OREGON STREAMFLOW

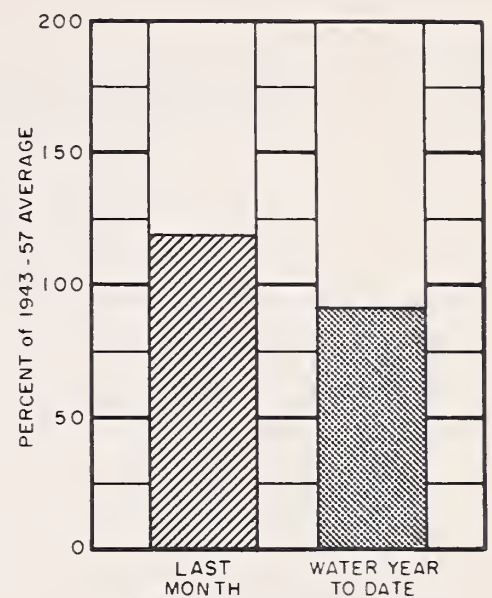
October 1, 1963



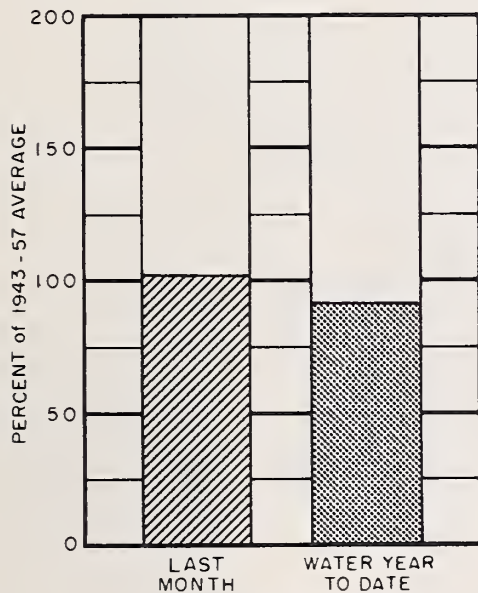
Owyhee Lake net inflow



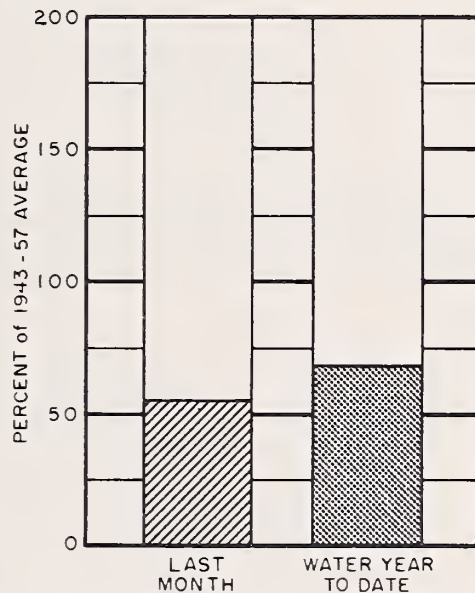
Umatilla near Umatilla



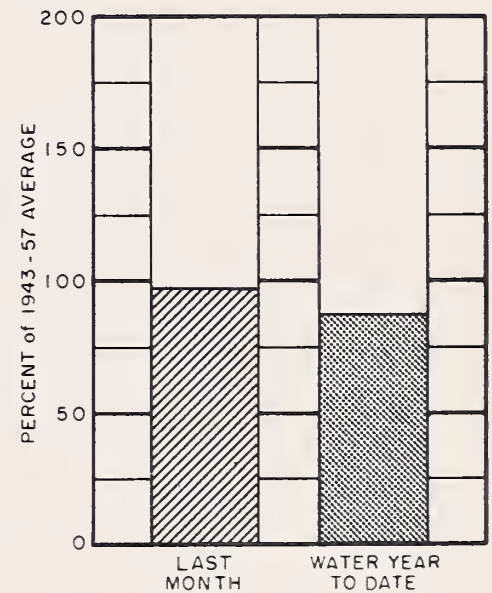
John Day at Service Creek



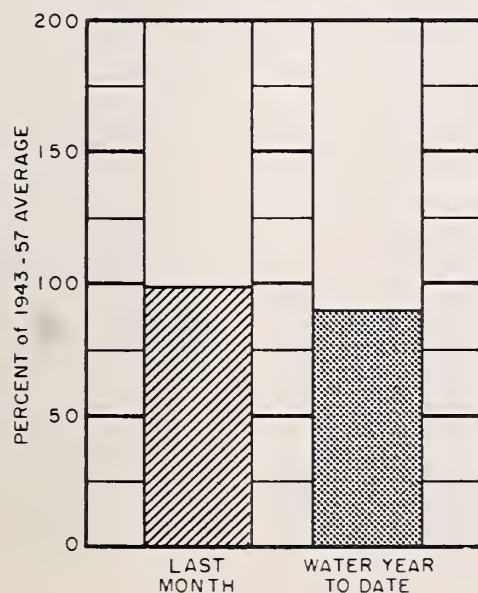
Deschutes at Moody



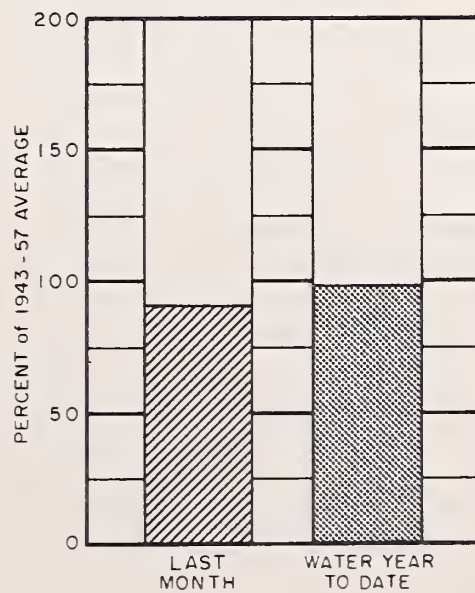
Hood and conduit near Hood River



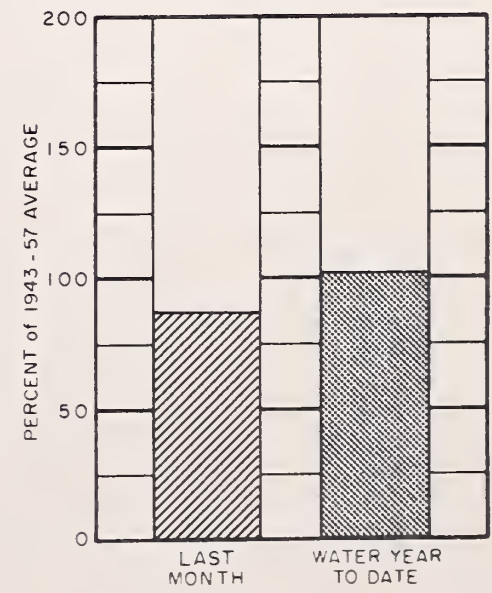
Mid. Fk. Willamette below No. Fk.



Umpqua near Elkton



Rogue at Raygold



Upper Klamath Lake net inflow

Data furnished by U.S. Geological Survey; The California Oregon Power Co.; and North and South Boards of Control Owyhee Project.

The Following Organizations Cooperate in the Oregon Snow Survey Work

STATE

- Idaho Cooperative Snow Surveys
- Nevada Cooperative Snow Surveys
- Oregon State University
- Oregon State Engineer and Corps of State Watermasters
- Oregon State Highway Engineers
- Soil Conservation Districts of Oregon

COUNTY

- Douglas County Water Resources Survey

FEDERAL

- Department of Agriculture
 - Cooperative Extension Service
 - Forest Service
 - Soil Conservation Service
- Department of Commerce
 - Weather Bureau
- Department of the Interior
 - Bonneville Power Administration
 - Bureau of Land Management
 - Bureau of Reclamation
 - Fish and Wildlife Service
 - Geological Survey
 - National Park Service
- Department of National Defense
 - Corps of Army Engineers

PUBLIC UTILITIES

- Pacific Power and Light Company
- Portland General Electric Company
- California-Pacific Utilities Company

MUNICIPALITIES

- City of Baker
- City of La Grande
- City of The Dalles
- City of Walla Walla

IRRIGATION DISTRICTS

- Arnold Irrigation District
- Associated Ditch Companies
- Burnt River Irrigation District
- Central Oregon Irrigation District
- East Fork Irrigation District
- Grants Pass Irrigation District
- Jordan Valley Irrigation District
- Lakeview Water Users, Incorporated
- Medford Irrigation District
- North Board of Control - Owyhee Project
- North Unit Irrigation District
- Ochoco Irrigation District
- Rogue River Valley Irrigation District
- South Board of Control - Owyhee Project
- Squaw Creek Irrigation District
- Talent Irrigation District
- Tumalo Project
- Vale-Oregon Irrigation District
- Warm Springs Irrigation District

PRIVATE ORGANIZATIONS

- Amalgamated Sugar Company
- The Crag Rats, Hood River, Oregon

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*"The Conservation of Water begins
with the Snow Survey"*

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